

NOTES ON THE ACRIDIDÆ (ORTHOPTERA) OF CENTRAL ASIA, WITH  
DESCRIPTIONS OF NEW SPECIES AND RACES.

By

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This paper is based on an extremely interesting collection of grasshoppers belonging to the Turkestan Entomological Station in Tashkent and forwarded to me for study by my friend V. I. Plotnikov, Director of the Station, to whom my most sincere thanks are due\*. A satisfactory critical study of the collection proved to be impossible, without examining certain types of species described by Saussure from Turkestan and Persia and, owing to the kindness of Dr. Zenay and Professor R. Ebner, I have been fortunate to receive such of them as are preserved in Brunner's collection at Vienna.

The types and allotypes of new species and subspecies described below will be deposited in the Zoological Museum of the Academy of Sciences, Petrograd; paratypes, when available, are distributed between the British Museum collection and that of the Turkestan Entomological Station.

Subfamily ACRIDINÆ.

*Chrysochraon dispar major*, sbsp. n.

Differs from the typical (Central European) form by its much larger dimensions, as follows:—

		dispar. ♂	dispar. ♀	major. ♂	major. ♀
Length of body	.. ..	18mm.	25mm.	23mm.	38mm.
„ pronotum	.. ..	3	5	4	6
„ elytra	.. ..	10	7	14	10.5
„ hind femora	.. ..	12	15	13.5	17.5

Described from 2 ♂♂ and 2 ♀♀ from Khumsan, distr. Tashkent, 9, viii, 1920.

Although there are no structural or colour characters separating the Turkestan specimens from the European ones, the difference in dimensions between them is so striking that I feel quite justified in describing the new subspecies.

*Arcyptera flavicosta turanica*, sbsp. n.

Apparently closely allied to *A. f. transcaucasica*, Uv. (Bull. Mus. Caucase, xi, 1917, p. 281). Very uniformly coloured. Pronotal keels not marked with pale lines. Elytra in the male extending a little beyond the middle of hind femora, in the female not reaching their middle. Hind femora with the upper fasciæ scarcely perceptible in the upper inner area only, entirely obsolete outwardly; knees unicolorous, with only semilunar spots on the lobes black.

				♂ (type)	♀ (paratype)
Length of body	.. ..	.. ..	.. ..	25mm.	35mm.
„ pronotum	.. ..	.. ..	.. ..	5	6.5
„ elytra	.. ..	.. ..	.. ..	12.5	14
„ hind femora	.. ..	.. ..	.. ..	15	19

Male (type) is from Langar, distr. Osh, prov. Ferghana, 22, vi, 1913; female (paratype) from Tchimgan, distr. Tashkent, 8-9, vi., 1912.

This is a very distinct race of the common *A. flavicosta*, Fisch. It seems to be closely related to *A. f. crassiuscula*, Zub., from the Semiretchye province, but differs from it, as well as from the Transcaucasian subspecies, by its more abbreviated elytra and uniform coloration.

\* I must thank here also another kind friend Professor V. P. Pospelov who took the trouble to bring the collection from Russia by hand, as it was impossible to send it otherwise.

I have recorded this insect from Tashkent under the incorrect name *A. labiata*, Brulle (Revue Russe d'Entom., xii, 1912, p. 208). Brancsik's record (Jabresh naturviss. Vereins Trenns. Com., xxi-xxii, 1899, p. 133) of *A. labiata* from Ashkhabad is almost certainly referable also to *A. f. turanica*.

Subfamily CEDIPODINÆ.

*Thalpomena pilosa* (Sauss.).

This insect has been very briefly described by Saussure (Prodr. Cœtipod., p. 201), as a variety of *Sphingonotus cœrulans*, but an examination of the type sent from Vienna showed that it is strikingly different from any known *Sphingonotus* and must be placed in the genus *Thalpomena*, although certain of its characters do not agree with the present conception of the genus. I feel it necessary to give here a detailed description of the type.

♀. *Antennæ* much longer than head and pronotum together. *Head* compress-ed laterally, moderately prominent above pronotum. Face distinctly reclinate, in small scattered punctures; frontal ridge straight in profile, broad, somewhat constricted at the fastigium, subparallel in the rest, widened and obliterate close to clypeus; its margins scarcely raised, thick, obtuse; surface of the ridge slightly convex, punctured above the ocellum, shallowly impressed at and below it. Fastigium of vertex sloping and forming a distinct obtuse, rounded angle with the frontal ridge, nearly twice as long as broad, feebly impressed; margins scarcely raised; no carina separating fastigium from the frontal ridge. Temporal foveolæ not impressed, punctured. Eyes elliptical, distinctly higher than long, prominent sideways but not upwards; their height scarcely exceeds the subocular distance; interocular distance equals the width of frontal ridge and is half of the horizontal diameter of an eye. Occiput distinctly sloping backwards. *Pronotum* compressed laterally, strongly narrowed anteriorly, but not much constricted in the prozona, scarcely selliform; disc practically flat, forming distinct rounded angles with the lateral lobes, although no lateral keels are developed; first transverse sulcus well expressed, broadly sinuate; second sulcus obsolete in the middle; third sulcus deep and narrow, slightly angulate in the middle and subsinuate laterally; metazona fully twice as long as prozona, about as broad as it is long, broadly rounded behind; surface of metazona slightly impressed at the shoulders, finely rugose, median keel low, but sharp and tectiform in front of the first sulcus, interrupted between the sulci, linear in metazona; lateral lobes half again as deep as long, with the anterior angle obtuse, lower margin subsinuate, hind angle near 90°, broadly rounded. Episternum with the lower margin rounded-angulate. Mesosternal interspace about as broad as one of the lobes. *Elytra* almost reaching the apex of hind tibiæ, broad, parallel-sided, with the apex obliquely truncate; discoidal vein well developed, incassate, sinuate and approached apically to the radial, but not touching it; no false vein in the interulnar area; reticulation of the basal half, including the discoidal and interulnar areas dense and very irregular, the cells being very variable in shape, but all more or less as broad as long, not elongated as in typical representatives of the genus; reticulation of the distal half regular, except near the stigma, cells subquadrate. *Hind femora* short, broad. *Hind tibiæ* somewhat shorter than the femora.

*Coloration* reddish-ochraceous. Pronotum with a faint trace of pale x-shaped design. Elytra with irregular brownish spots; veins and veinlets reddish-ochraceous. Wings hyaline, very faintly bluish near the inner margin. *Hind femora* with blackish dots on the outer side, especially along the lower outer carina, with three indistinct brownish fasciæ on the upper areas; their inner face including the inner lower sulcus, shining chocolate, with a pale pre-apical ring; the inner knee-lobe pale, marginated with chocolate from above. *Hind tibiæ* dirty pale ochraceous outwardly, and brown with the postbasal ring and

apex pale, inwardly; tarsi whitish. Body and legs in long, dense whitish hairs.

Length of body	..	..	..	..	..	23mm.
„ pronotum	..	..	..	..	..	5
„ elytra	..	..	..	..	..	23
„ hind femora	..	..	..	..	..	11

The type is the only known specimen; it is from Shahrud, N. Persia (Brunner's collection, No. 14665).

As may be seen from the above description, this curious insect is not a quite typical member of the genus *Thalpomena*; indeed, Saussure's mistake in referring it to *Sphingonotus* is quite excusable, the two genera being very close to each other. I refer the insect to *Thalpomena* only temporarily, until a thorough revision of both genera and their allies may be undertaken.

*Th. pilosa* is very close to *Th. hirtipes* recently described by me from Palestine (Entom. Month. Mag., 3rd ser., ix, 1923, p. 84), but differs from it in larger size, pronotum less constricted and with a very long and broadly rounded behind metazona, in the venation of elytra and in the coloration of hind legs.

*Leptopternis gracilis* (Ev.).

1884. *Sphingonotus angustipennis*, Saussure, Prodr. Oed., p. 201.

The type of *S. angustipennis* from Shahrud, Persia, has been examined by me and proved to be undoubtedly conspecific with *Leptopternis gracilis* (Ev.). There is a difference between that type and specimens of *L. gracilis* from other localities, but in the general coloration only; the type is of pale ochraceous color, practically without the pattern characteristic for the species, but it is impossible to say whether this is due to an individual variation, or this type of coloration should be regarded as characteristic for a distinct subspecies to which the name *angustipennis* may be then applied.

*Leptopternis iliensis*, sp. n.

♀. Resembling in the general appearance to *Sphingonotæ mecheriæ*, Kr., but more slender. *Antennæ* slightly longer than the head and pronotum together. *Face* distinctly reclinate. Frontal ridge in profile convex and slightly prominent between the antennæ, straight in the rest; its margins sharp, raised, practically parallel throughout, only slightly approximated near the fastigium and divergent quite close to the clypeus. Fastigium of vertex moderately sloping, forming an obtuse rounded angle with the frontal ridge, moderately prominent in front of eyes, about twice as broad as the frontal ridge; lateral margins distinctly raised; median keel scarcely perceptible. Temporal foveolæ rounded triangular. Eyes somewhat prominent sideways, but not upwards, short oval, about as high as the subocular distance; interocular distance subequal to the horizontal diameter of an eye. Occiput sloping backwards. *Pronotum* short, distinctly constricted in the prozona; anterior margin sinuate enveloping the head like a collar, with the submarginal sulcus well developed, especially on the sides; all sulci deep, the first one continuous, sinuate, in the middle, the second straight, interrupted in the middle by the double transverse impression with callous slightly raised margin, the third straight; prozona between sulci with callous convexities; metazona as long as prozona, nearly twice as broad in shoulders as it is long, very broadly rounded behind; with slightly perceptible lateral keels in the anterior part; its surface feebly rugulose, somewhat impressed anteriorly on both sides and feebly convex posteriorly; median keel absent in prozona, linear in metazona; lateral lobes more vertical than in *S. mecheriæ*, not much deeper than long, with the lower margin bi-sinuate, ascendant, anterior angle obtuse, rounded, posterior angle near 90° and





Described after a single female from Ak-Togoi, valley of the river Ili, prov. Semiretchye, 10 vi, 1914.

The genus *Leptopternis*, as already stated by Vosseler (Zool. Jahrb., Syst., xvi, p. 379) is very close to *Sphingonotus*, and the new species is particularly interesting as it gives new evidence of the intimate relationship of the two genera. In fact, *L. iliensis* is extremely alike, when examined superficially, to a *Sphingonotus*, and especially to *S. mechericæ*, owing to its relatively short and heavily fasciated elytra. At the same time, however, its very slender hind femora and the length and shape of hind tibial spurs, as well as the structure of hind tarsi indicate clearly that it is a true *Leptopternis*, though strongly different from the genotype, *L. gracilis* (Ev.). I might mention here also, that there is a good, apparently generic, character common to *L. gracilis* and *L. iliensis*, separating them from *Sphingonotus* in the relative width of the mesosternal interspace which is distinctly broader than one of the lobes in *Sphingonotus* and narrower than that in *Leptopternis*. The lower valvæ of the ovipositor in the two species of *Leptopternis* are exactly alike (see description above) and differ from those of *Sphingonotus* in much more acute and strongly prominent basal teeth and long, slender apical parts.

*L. iliensis* differs strikingly from the three\* other species of the genus (*L. gracilis*, Ev., *L. maculata*, Voss. and *L. vosseleri*, Bal.) by its fasciated elytra, apart from numerous structural characters.

*Sphingonotus cœrulans maculatus*, subsp. n.

Differs from the typical (European) race by the head being strongly prominent upwards; larger eyes; pronotum more constricted in the prozona and with the metazona more broadly rounded behind; elytra with the basal fourth, two well defined complete transverse fasciæ and several spots in the distal part, dark sepia brown. Hind wings faintly bluish basally. Hind tibiæ greyish-white.

	♀ (type).	♂♂ (para-types).	♀♀ (para-types).
Length of body .. .. .	26mm.	17-21mm.	23-27mm.
„ pronotum .. .. .	4	3-4	4-5
„ elytra .. .. .	26	17-20	20-27
„ hind femora .. .. .	13	8-9	10-13

The type is from Savatskaya volost, dist. Khodzhen; paratypes (7 ♂♂ and 7 ♀♀) from Tashkent; Golodnaya Step; Tuz-kane, S W. of Dzhizak; Tashlan and Jangi-Mazar, distr. Khodzhen; station Darbaza; Shachimardan, distr. Skobelev; Romanovka, prov. Semiretchye; Novo-Michaylovka, distr. Tashkent; Kshtut, Buchara.

All specimens of *S. cœrulans* from Turkestan possess a very different appearance from the European ones, owing mainly to slight differences in the shape of head and pronotum and to heavily marked elytra. As there are, however, no well defined structural characters separating them from the typical form, I regard them as only a local race of the species.

Males of *S. cœrulans maculatus* are often more strikingly adorned than the females, possessing a whitish face, a pale x-shaped design on pronotum, a blackish spot on the prozona of lateral lobes and very sharply banded elytra.

*Sphingonotus rubescens* (Walk.)

1870. *Edipoda rubescens*, Walker, Zoologist (2), v, p. 2301.

1884. *Sphingonotus coeruleans*, var *aegyptiaca*, Saussure, Prodr. Oedipod., p. 200.

1923. *Sphingonotus rubescens*, Uvarov, Novit. Zool., xxx, p. 67, Pl. i, figs. 1, 2.

\* Some other species originally described as *Leptopternis* are removed now to *Hyalorhipis*.

I have shown in the paper quoted above that *rubescens* is a good species and not a mere variety of *S. cœrulans*, and I have given numerous records of its occurrence in various parts of the Desert region. Those records did not, however, include Turkestan, where the species also occurs; I have seen specimens from the following localities; Tedzhen, Transcaspia; Kerki on the Amu-Darya and Savatskaya volost, distr. Khodzhen.

*Sphingonotus callosus*, Fieb.

With reference to this species I must correct here my former statement (Revue Russe d'Entom., xiv, p. 220) that it should be regarded as merely a form of *S. cœrulans*, as well as Ramme's proposition (Arch. Naturgesch., 86, Abt A, 12 Heft, pp. 94-99) to consider it a subspecies of the latter species. At that time I did not know what the true *S. callosus* is like, and I believed the only difference between it and *cœrulans* to be in the band of hind wings, while in fact there are some very important characters in the morphology of head and pronotum which make it quite clear that no close relationship exists between the two insects. My mistake has been partly caused also by the study of a species of *Sphingonotus* from the river Kuma, N. Caucasus, which is very near *cœrulans* in the morphological characters but differs from it in the banded wings; I have no specimens of this insect before me now, but I am perfectly certain that it has nothing to do with *callosus* and represents an obviously undescribed species (or subspecies of *cœrulans*).

*S. callosus* has been recorded from Transcaspia, but not yet from Turkestan; I have before me a specimen from Dzhety-Say, Golodnaya Steppe and another from Tuz-Kane, dist. Dzhizhak. It occurs also in Transcaucasia whence there are some specimens in Burr's collection (Oxford University) from Geok-Tapa prov. Elisavetpol.

*Sphingonotus mecheriæ*, Vir.

I have already recorded this species, described originally from Algerian Sahara, as occurring in Central Asia, as well—Amara and Baghdad in Mesopotamia and Amman in Transjordan. Now I have before me specimens from the following localities in Asia: Jericho and Bethlhm, Palestine; Fao, Persian Gulf; Kazwin and Shahrud, Persia; many localities in Turkestan (Bir-Kazan, Perovsk prov.; Ashe-Su, Ferghana; Tchardara) and Bairam-Ali, Transcaspia. There is also in British Museum a specimen from Astrakhan, while the northernmost locality whence the species is known, is Kalmykov, Uralsk province; I have recorded from the latter locality what I thought a variety of *S. cœrulans*, but what really is *S. mecheriæ* (Horæ Soc. Ent. Ross., xxxix, 1910, p. 375, var. 1.).

*Sphingonotus halocnemi*, sp. n.

In my paper on Orthoptera of the Uralsk province I described briefly, without a distinctive name, what I supposed to be a variety of *S. cœrulans* (Horæ Soc. Entom. Ross., xxxix, 1910, p. 375, var. 2), but what must be a good species. I propose here the name *S. halocnemi* for it, and its diagnosis, (a translation of my description quoted above supplemented by some characters communicated to me by Miss E. Miram who examined the types for me) is, as follows: Small, delicately built; head relatively large and strongly prominent upwards; frontal ridge sulcate; fastigium of vertex sloping, impressed, with sharply raised margins and a median keel; pronotum with a distinct low median keel throughout; elytra tender narrow, equally broad throughout, with thin hyaline or slightly darkened veins; discoidal vein parallel to radial; wings hyaline (or very slightly bluish basally), veins dark.



				♂♂
Length of body	..	..	..	13-15 mm.
„ „ pronotum	..	..	..	2.9-3
„ „ olytra	..	..	..	14-15
„ „ hind femora	..	..	..	7.7-2

The types have been all collected by myself in clumps of *Halocnemum strobilaceum* on damp salt-pans at the shores of the lake Tungurluk-Sor, prov. Uralsk, 20, vi, 1909; the larvæ have been found feeding on the same plant.

*Sphingonotus nebulosus* (F.-W.)

1846. *Oedipoda nebulosa*, Fischer Waldheim, Orth. Imp. Ross., p. 290, pi. xxxii, fig. 1.  
 1884. *Sphingonotus nebulosus*, Saussure, Prodr. Oedipod, p. 205.  
 1884. *Sphingonotus persa*, Saussure, l.c., p. 205.  
 1888. *Sphingonotus persa*, Saussure, Addit. ad Prodr. Oed., p. 86.  
 1888. *Sphingonotus intutus*, Saussure, l.c., p. 87.  
 1888. *Sphingonotus nebulosus*, Saussure, l.c., p. 87.

I have already made an attempt to clear up the synonymy of this insect (Bull. Mus. Caucase, xii, 1919, p. 157) but the conclusions I arrived at then must be considered incorrect, since I have based them mainly on doubtful literature records accepted without necessary criticism and caution; besides, I paid then no attention to morphological characters and relied entirely on the coloration of wings. As a result, I thought it possible to compare *S. balteatus* Serv. with *nebulosus*, *persa* and *intutus*, while in fact, *balteatus* is a species extremely well defined by some purely morphological characters (see Uvarov, Journ. Bombay Nat. Hist. Soc. xxix, 1923, p. 645; and Bull. Min. Agric. Egypt, No. 41, 1924, p. 24) and quite distinct from the other three insects. These latter I consider now as conspecific, although they may represent different geographical races which cannot be decided until long series of specimens from different localities are studied critically.

There seem to be some mistakes in Saussure's treatment of *persa*, and *intutus* in his two papers. Thus, he described *persa* in *Prodromus* as having the discoidal (intercalate) vein more removed from the radial (media) than it is in *nebulosa*, while in *Additamenta* he says quite definitely that the discoidal vein of *persa* is developed as in *balteatus* and strongly sinuate, and *intutus*, is separated from *persa* by the vein straight, irregular. Moreover the typical localities for *persa* are quoted in *Prodromus* as Shahrud and Ordubat, while in *Additamenta* no locality whatever is given for *persa* and *intutus* is described from Shahrud. I am inclined to think that Saussure has had, no types of *persa* before him when writing *Additamenta* and since the type (Coll. Brunner No. 14660, selected as single type of *persa* by me) agrees with the original description in *Prodromus* of *persa* (but not with its re-description in *Additamenta*), and also with that of *intutus*, I consider these two names as absolute synonyms. The name *persa* may be accepted as a subspecific one for the race inhabiting Northern Persia and differing from the Turkestan specimens by the more vividly bi-colored base of hind wings and more rugose pronotum with the hind angle not rounded, almost sharp.

*Sphingonotus savignyi*, Sauss.

This species distributed apparently all over Palearctic deserts exhibits a considerable variability in the general dimensions and in the width and intensity of the wing fascia, as well as in the development of the apical spot on the wings. It is not an easy matter, however, to decide whether these variations or any of them, are geographical. Saussure was inclined to regard them as characteristic for local forms, while he described what he called a "stirps *apicalis*" from Turkestan and Persia and a var. *major* from Transcaspia. The name *apicalis*, however, has been

used by Saussure himself for another species of *Sphingonotus*, two pages, before, and cannot be used for any form of *S. savignyi*; apart from that, I do not see from specimens in the British Museum any constant and definite difference in the wing fascia and their apical spot between insects from Egypt (type locality) and Persia or Turkestan. A rather striking difference is observed only in specimens from the Persian Gulf and Karachi, which are small and have got the wing fascia very narrow (and accordingly well separated from the hind margin), but they belong, perhaps, to an undescribed race. Specimens from Algeria which I examined are usually with a narrow fascia and without the apical spot, but Vosseler (Zool. Jahrb., xvi, 2, p. 378) records also "*apicalis*" from Laghouat. As for the size of insects, the variability in this respect among Egyptian specimens is considerable, and some of them are even larger than var. *major* of Saussure, while Vosseler (*loc.*) also recorded some large specimens from Gafza, Algeria. It seems, therefore, that it would be more advisable not to attempt a division of the species into geographical forms until really long series of specimens may be studied, and the extent of purely individual variations established in each case.

*Sphingonotus obscuratus apicalis*, Sauss.

1884. *Sphingonotus apicalis*, Saussure, Prodr. Oedipod, p. 206.

1888. *Sphingonotus apicalis*, Saussure, Addit. ad Prodr. Oed., p. 87.

Thanks to my friend Professor R. Ebner I had an unique opportunity of studying the original types of *S. apicalis*, Sauss., a male and a female from Shahrud, Persia, and of comparing them with specimens of *S. obscuratus* Walk., from other localities (for the synonymy of the latter species see my paper in this Journal, xxix, 1923, p. 644). Although the differences between them are quite considerable, I am convinced that they are not of specific value, but dependent on geographical variation, and I regard therefore the *apicalis* as only a subspecies of *obscuratus*. The essential characters of *apicalis* not sufficiently described by Saussure are, as follows:

The head relatively small and narrow, when viewed in profile only slightly projecting above the pronotum. Pronotum is also narrow and strongly narrowed anteriorly, almost conical; its anterior margin practically straight, with a shallow submarginal sulcus; the first transverse sulcus well expressed throughout, the second one obliterate in the middle, the third practically straight, deep and narrow; no submedian tubercles between the sulci; median keel scarcely perceptible before the first sulcus, obliterate in the rest of prozona, fine and linear in the metazona; metazona almost twice as long as prozona and somewhat longer than broad, convex (Saussure says "dorso a latere viso subrecto," but it is not so in the male type, while in the female the prozona is less constricted and the metazona more, but not quite, straight in profile); the hind angle very near 90° and but little rounded in the male, obtuse and rounded in female. Elytra relatively very long and narrow, reaching beyond the apices of the hind tibiae; discoidal vein well developed, distinctly sinuate and strongly approximate distally to the radial vein, but not quite touching it; the hind discoidal area broad, not densely, but irregularly reticulated. Wings more than one half again as long as broad in the male, somewhat shorter and broader in female; the width of their fascia equals to about one third of the wing length, with the inner margin not sharply defined but fading gradually. Measurements of the types are, as follows:

	♂	♀
Length of body .. .. .	32mm.	39mm.
"  pronotum .. .. .	6.5	8
"  elytra .. .. .	35	42
"  hind femora .. .. .	14	17
Maximum width of wing fascia .. .. .	12	14



There may be noticed some discrepancy between my measurements of the types and those given by Saussure who gives the total length as 40 mm. for the male and 36 mm. for the female, and the length of elytra as 34 mm. and 40mm. respectively, but as the identity of the types is beyond any doubt, we must admit a serious carelessness on Saussure's part which is, by the way, apparent in good many places of his on the whole excellent work.

It is obvious from the above re-description of types that *apicalis* differs from *obscuratus* both in the shape of pronotum, and in the shape and position of discoidal vein. Nevertheless, I cannot regard them as specifically distinct, as a specimen before me, from Abaden, S. Persia, recorded by me in this Journal before (xxix, 1923, p. 644) as *S. obscuratus* presents characters most obviously intermediate between typical *obscuratus* from Egypt and *apicalis*. I believe, therefore, that *apicalis* is only a good geographical race of *obscuratus*, known at present from Shahrud only; the above quoted specimen from Abaden is also nearer to *apicalis* than to *obscuratus*.

*Sphingonotus obscuratus latissimus*, subsp. n.

1898. *Sphingonotus brunneri*, Zubovsky, Ann. Mus. Zool. Acad. Imp. Scien., St. Petersburg, iii, p. 97.

Zubovsky described specimens of *S. obscuratus* (= *S. brunneri*) from the river Ili in Semiretchye, E. Turkestan, as having the wing fascia extremely broad, covering the whole basal part of wings, except a small pale-bluish strip along the anterior margin. As obviously all specimens from that locality examined by him possessed this character, I feel fully justified in regarding the form as a distinct subspecies deserving a name. Morphological characters of the subspecies are not mentioned by Zubovsky at all, but he says that the elytra are provided with only feebly, or not at all, developed apical spots.

*Sphingonotus obscuratus transcaspicus*, subsp. n.

1914. *Sphingonotus apicalis*, Uvarov, Revue Russe d'Entom, xiv, p. 221.

In the paper just quoted I described briefly a local form of what I then considered to be *S. apicalis*, but I hesitated to give it a name without sufficient knowledge of the true *apicalis*. Now that I have studied the latter considered by me a subspecies of *obscuratus* (see above) and compared it with a specimen from practically the same locality in Transcaspia as the one described in that my paper, I feel convinced that this is a very well defined local race of *obscuratus*; its description is, as follows:

Distinctly smaller than *apicalis*. Head more prominent above the pronotum than in *apicalis*; especially the eyes are much more projecting upwards. Pronotum slightly more selliform than in *apicalis*, as in the latter without submedian tubercles between the sulci; metazona longer than the prozona, with the apical angle less acute and more rounded than in *apicalis*; lateral lobes broadly rounded behind. Elytra with the discoidal vein strongly sinuate, closely approximated distally to the radial, but not touching it, marked with indefinite pale ochraceous small spots, without the apical spot. Wings pale bluish basally; their fascia narrow, the maximum width being equal to about one fourth of the length of a wing; the fascia leaves a very narrow hyaline margin behind and does not reach the inner margin.

Length of body .. .. .	♂	29mm.
"   pronotum .. .. .		5.5
"   elytra .. .. .		30
"   hind femur .. .. .		11.5
Maximum width of wing fascia .. .. .		7

Described from a male from Ivanovka in the Kopet Dagh mountains, Transcaspia, 13, vi, 1913.

My previous record of this subspecies (*l.c.*) was from Nuchur, also in Kopet Dagh mountains.

A remarkably narrow wing fascia and relatively small size give this insect an appearance somewhat dissimilar to other races of *obscuratus* but it is undoubtedly close in its morphological characters to subsp. *apicalis*. It is very noteworthy that two substantially distinct subspecies should occur not very far, comparatively, from each other as *apicalis* (Shahrud) and *transcaspicus* (Kopet Dagh) do.

*Key to subspecies of S. obscuratus.*

- 1 (4). Metazona scarcely longer than prozona; the latter with two distinct submedian tubercles. Discoidal vein practically straight and almost parallel to the radial. Apex of elytra without a spot.
- 2 (3). Wing fascia strongly narrowed anteriorly; apical spots small, subobliterate.—Algeria.
- 3 (2). Wing fascia not strongly narrowed anteriorly; apical spots large and well developed.—Egypt, Sinai.
- 4 (1). Metazona distinctly longer than prozona; the latter without submedian tubercles. Discoidal vein sinuate, almost touching distally the radial.
- 5 (8). Wing fascia very broad. Size large.
- 6 (7). Wing fascia leaves the whole basal third of wing clear. Elytra with an apical spot.—Shahrud.
- 7 (6). Wing fascia leaves clear only a small strip along the anterior margin of wing base. Elytra without an apical spot.—Semiretchye.
- 8 (5). Wing fascia narrow, not broader than one fourth of the length of wing. Size small. Elytra without an apical spot.—Kopet Dagh, Transcaspia.

*lameeri*, Fin.

*obscuratus* (Walk.)

*apicalis*, Sauss.

*latissimus*, subsp. n.

*transcaspicus*, subsp. n.

I do not know the form described by Saussure as *S. brunneri* and undoubtedly belonging to this species; it may represent another subspecies.

*Tmethis tartarus montanus*, subsp. n.

Differs from the typical form (from the plains of Turkestan) by the hind femora and tibiæ being pale yellowish, not red, on the inside.

1 ♂, 1 ♀ from the Tchatkal mountains, distr. Tashkent, 22, vii, 1919.

Although the difference between the two forms is only in the color of hind legs, it is, according to communication by Mr. V. Plotnikov who collected both of them, quite constant and must be considered of subspecific value, since the distribution of the two forms is different.

*Tmethis karatavicus*, Uv.

I think now that *karatavicus* described by me as a subspecies of *T. bilobus*, St. (Revue Russe d'Entom, xii, 1912, p. 212) is a good species.

*Tmethis transiens*, sp. n.

Very similar to *T. bilobus* (St.), but differing from it in the structure of pronotum and other characters.

Size rather small for the genus; moderately rugose. *Antennæ* longer than head and pronotum together. *Head* as in *T. bilobus*. *Pronotum* less compressed laterally and shorter than in that species; its anterior margin very ob-

tusely angulate, scarcely projecting over the occiput; median keel in prozona less raised, thick, seen in profile its first lobe is feebly ascendent, equal in length to one half of the prozona; second lobe is higher than the first, triangular in profile, thick with two divergent forward keels on the upper surface delimitating two impressions; third lobe lower than the second, triangular; metazona less than half again as long as prozona (in *T. bilobus* nearly twice), not longer than it is broad at the shoulders, feebly convex, with the median keel fine linear throughout; hind margin not lamellate; hind angle about 90°, rounded, with the sides distinctly convex; the whole surface of pronotum, lateral lobes included, covered not densely with round callous tubercles. *Elytra* extending a little beyond the hind knees. *Wings* with the venation exactly like that in *T. bilobus*. *Hind femora* with the upper carina feebly and gradually lowered in the apical third; lower carina feebly wavy.

*Coloration* greyish-brown. *Elytra* with a few scattered, scarcely perceptible small dark spots. *Wings* infumate throughout, except the two apical lobes and some cells in the middle which are only slightly darkened. *Hind femora* and *tibiæ* bright brick-red inwardly.

♀ (paratype). As the male, but the *elytra* only reaching the hind knees.

	♂ (type)	♀ (paratype)
Length of body .. .. .	25 mm.	30 mm.
.. pronotum .. .. .	8	9.5
.. elytra .. .. .	21	19
.. hind femora .. .. .	13.5	15

Described from 4 ♂♂ and 4 ♀♀ from Vuadil, prov. Ferghana, 28 v, 1913.

I have once recorded this insect under the name *T. bilobus* (Revue Russe d'Entom., xiv, 1914, p. 225), but a careful comparison with the latter shows important differences which justify separating them. It is, of course, not impossible that *T. transiens* is only a subspecies of *T. bilobus* (original locality Daghestan, Caucasus), but the metazona of pronotum is very differently shaped in the two insects, and I preferred to describe *transiens* as a distinct species. The most important feature of *T. transiens* is the short metazona with the margin not lamellate, as it is in *T. bilobus* and *T. muricatus*, but rather thick, approaching to the type which may be observed in *T. semenovi* (Zub.).

*Tmethis ferghanensis*, sp. n.

♂. Resembling *T. tartarus* (Sauss.) but much smaller. *Antennæ* (in a paratype, in the type they are broken) distinctly longer than the head and pronotum together. *Face* vertical; frontal ridge between antennæ parallel, sulcate, below the ocellum suddenly constricted, further down widened and obliterate; vertex sloping, slightly longer than broad, scarcely impressed, with the margins obliterate and no trace of median keel. *Pronotum* only feebly compressed laterally, slightly narrowed anteriorly, but not constricted in prozona; anterior margin very obtusely angulate; median keel in the prozona thick, less elevated than in *T. tartarus*, not deeply cut by the sulci; viewed in profile the first lobe of the keel is shorter than half of the prozona, with the upper margin not strongly ascendent, slightly concave and the hind angle near 90°, rounded; the second lobe very thick, rounded, with the usual upper double impression hardly perceptible; the third lobe low, obtusely concial, with the hind margin sloping backwards and forming an obtuse angle with the metazona (not reclinate and forming an acute angle as in *T. tartarus*); metazona as long as prozona, sellate owing to a deep transverse impression of its anterior part and to the incrassate posterior part; median keel in metazona linear; hind angle obtuse, rounded; hind margins thick, feebly convex; the surface of pronotum, including the lateral lobes, is covered



with scattered, low, round callous tubercles. *Elytra* extending to the apex of the distal third of femora; their maximum width beyond the middle; the apex broadly rounded. Wings circular; their venation as in *T. escherichi* (Kr.) *Hind femora* with the upper carina serrulate, not strongly and not suddenly lowered in the apical third. *Abdominal tergites* with only slightly cristate hind margins and a lateral row of scarcely perceptible tubercles.

*Coloration* greyish-ochraceous. Antennæ whitish. *Elytra* with fairly numerous small brownish spots. Wings in the pre-radial part subhyaline with a narrow blackish submarginal fascia leaving a narrow hyaline margin; post-radial part infumate throughout. *Hind femora* inwardly dark-blue at the base, pale yellowish in the rest. *Hind tibiæ* bright brick-red inwardly.

♀ (paratype). Pronotal keel still lower and thicker than in the male, the hind margin of its hind lobe, when viewed in profile, forming a very obtuse (about 160°) angle with the metazona; the latter less sellate. *Elytra* not quite reaching the apex of the second tergite, separated from each other at the back. *Tergites* with a low linear median carinula and a lateral row of small tubercles. *Coloration* reddish-ochraceous.

	♂ (type.)	♀ (para type)
Length of body .. .. .	32 mm.	40 mm.
„ pronotum .. .. .	10.5	11
„ elytra .. .. .	9	8
„ hind femora .. .. .	17	19.5

Described after 2 ♂♂ and 2 ♀♀ from Asha Ba, prov. Ferghana, 4.vii.1913.

Although I compared this insect with *T. tartarus*, I did so simply because that species is better known than the recently described specimen from the Syr-Darya province i.e. *T. nigrescens*, Pylnov (Revue Russe d'Entom., xiv, 1914, p. 107), which seems to be very closely related to *T. ferghanensis*. The latter differs, however, from *T. nigrescens*, as far as it may be judged by description and figure of pronotum of Pylnov's species, in the still lower pronotal keel, sellate metazona, larger size and coloration of hind legs. It is not impossible, of course, that the two insects as well as *T. crassus*, m., represent only different races of the same species.

*Tmethis crassus*, sp. n.

♂. Allied to *T. ferghanensis*, Uv. *Antennæ* slightly longer than head and pronotum together. *Head* thick; face vertical, rugose; frontal ridge between antennæ parallel, sulcate, below the ocellum constricted, widened gradually and sulcate further down, almost reaching the clypeus; vertex sloping, rugulose, feebly impressed, with the margins irregular and an interrupted median carinula. *Pronotum* very thick; anterior margin scarcely angulate at all; median keel in prozona very low and thick, with the median line irregular; transverse sulci shallow; first lobe of the keel subequal to half of the prozona, seen in profile its upper margin is horizontal; second lobe slightly lower than the first, thick, with the upper foveolæ distinct; hind lobe quite low, conical; its hind margin forming a very obtuse angle with the metazona; metazona equal in length to prozona, very feebly impressed anteriorly and as feebly gibbous behind, distinctly broader than it is long, with the hind margins rounded; the median keel linear and irregular, the whole surface in longitudinal ridges and elongate tubercles, with distinct ridges in the place of lateral keels; prozona and lateral lobes in dense rounded tubercles. *Elytra*

not quite reaching the middle of hind femora, broadest in the middle with the apex parabolic. *Hind femora* as in *T. ferghanensis*. Abdominal tergites scarcely carinulate.

*Coloration* greyish-brown. Prozona of pronotum and the hind part of metazona somewhat blackish. Elytra blackish-brown. Wings infumate throughout, more darkly near the margin, but the margin itself is narrowly whitish. Hind femora and tibiae sanguineous inwardly.

						♂ (type.)
Length of body	..	..	..	..	..	31 mm.
„ pronotum	..	..	..	..	..	10
„ elytra	..	..	..	..	..	11
„ hind femora	..	..	..	..	..	17.5

A single male from Berkara, distr. Aulie-Ata, pro. Syr-Darya, i. vi, 1922.